

I. Thinking Strategies Used By Proficient Learners

Monitoring for Meaning

at a text level, readers . . .

- pause to reflect on their growing understandings
- recognize when they understand the text, and when they don't
- identify when and why the meaning of the text is unclear
- identify the ways in which a text becomes gradually more understandable by reading past an unclear portion and by rereading text
- decide if clarifying a particular confusion is critical to overall understanding
- explore a variety of means to remedy confusion
- consider, and sometimes adjust, their purpose for reading
- check, evaluate and make revisions to their evolving interpretation(s) of text

at a word level, readers . . .

- identify confusing words
- employ a range of options for reestablishing meaningful reading (e.g., rereading, reading on, using words around the unknown word, using letters and sounds, using a meaningful substitution)

at a text level, writers . . .

- monitor their own writing during the composition process to insure that it makes sense
- pay close attention to the needs of their intended audience
- pay close attention to their purpose, making word choices and style decisions based on that purpose
- read and reread their writing so they can listen for clarity, organization, voice, and impact
- share their work so others can help them check for clarity and impact
- make conscious decisions about when to turn a small piece into a larger project, when revisions are complete, or when to abandon a piece altogether
- see places for revision in their own texts as well as those they are reviewing for other writers

at a word level, writers . . .

- pay close attention to their writing's surface-level conventions (i.e., spelling, grammar, punctuation, capitalization) so their ideas can be clearly understood by their readers
- see places for editing in their own texts as well as those they are reviewing for other writers

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- check to make sure answers are reasonable
- use manipulatives/charts/diagrams to help them make sense of the problem
- understand that others will build meaning in different ways and solve problems with different problem solving strategies
- write what makes sense to them
- check their work in many ways (e.g., working backwards, redoing problems)
- agree/disagree with solutions and ideas
- 'think aloud' about what's going on in their head as they work through a problem
- are metacognitive, continually ask themselves if each step makes sense
- discuss problems with others and write about their problem solving process to clarify their thinking and make problems clearer
- use accurate math vocabulary and show their work in clear, concise forms so others can follow their thinking without asking questions

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- recognize what they need to find and learn
- identify when they comprehend and take steps to repair comprehension when they do not

- pause to reflect and evaluate information
- choose effective ways of organizing information – notetaking, webbing, outlining, etc.
- use several sources to validate information and check for accuracy
- revise and edit for clarity, accuracy, and interest
- check sources for appropriate references and copyrights

Activating, Utilizing and Building Background Knowledge (Schema)

at a text level, readers . . .

- activate relevant, prior knowledge before, during and after reading
- build knowledge by deliberately assimilating new learning with their related prior knowledge
- clarify new learning by deleting inaccurate schema
- relate texts to their world knowledge, to other texts and to their personal experiences
- activate their knowledge of authors, genre, and text structure to enhance understanding
- recognize when prior knowledge is inadequate and take steps to build knowledge necessary to understand

at a word level, readers . . .

- apply what they know about sounds/letter relationships and word parts to make sense of unknown words

at a text level, writers . . .

- generate, select and narrow topics they care about
- plan their writing in a way that capitalizes on what they know and what they want to share
- take steps to build schema when what they know about a topic or text structure is inadequate for the writing they hope to do
- use their knowledge of their audience to make content and structure decisions
- use what they know about the content, genre, text format and conventions as they write

at a word level, writers . . .

- make word choices based on their understandings
- use their knowledge of sound/letter relationships and word patterns to spell unknown words
- make decisions about surface structures in light of what they know about how written language should look and sound

mathematicians . . .

- use current understandings as first steps in the problem solving process
- use their number sense to understand a problem
- add to schema by trying more challenging problems and hearing from others about different problem solving methods
- build understanding based on prior knowledge of math concepts
- develop purpose based on prior knowledge
- use their prior knowledge to generalize about similar problems and to choose problem solving strategies
- develop their own problems

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- choose topics about which they know and care
- launch investigations and ask questions based on previous interests and experiences
- consider what they already know to decide what they need to find out

Asking Questions

at a text-level, readers . . .

- generate questions before, during and after reading about the text's content, structure and language

- ask questions for different purposes including clarifying their own developing understandings, making predictions, and wondering about the choices the author made when composing
- realize that one question may lead to others
- pursue answers to questions
- consider rhetorical questions inspired by the text
- distinguish between questions that lead to essential/deeper understandings and 'just curious' types of questions
- allow self-generated questions to propel them through text
- contemplate questions posed by others as inspiration for new questions

at a word level, readers . . .

- pose self-monitoring questions to help them understand unknown/unfamiliar words (e.g., 'What would make good sense?', 'What would sound like language?', 'What would sound right and match the letters?', 'Is this a word I want to use as a writer? If so, how am I going to remember it?')

at a text-level, writers . . .

- monitor their writing progress by asking themselves questions about the choices they are making in terms of content and structure
- compose in such a way that leads their readers to generate their own questions
- invite other writers to question their composition decisions in order to confirm their writing decisions and to find areas in need of revision
- wonder whether they are creating quality writing that has deep meaning, is well organized and meets their purpose and the needs of their readers

at a word level, writers . . .

- wonder if the words they select meet their purpose and the needs of their intended audience
- extend what they know about writing conventions by asking themselves questions like "If I can spell _____, what else can I spell?"

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- ask questions (e.g., Could it be this? What happens if? How else could I do this? Have I seen this problem before? What does this mean?) before, during, and after doing a math problem
- test theories/answers/their hypothesis by using different approaches to a problem
- question others to understand their own process and to clarify problems
- extend their own thinking by asking themselves questions for which they don't have answers

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- narrow a search and find a topic
- clarify meaning and purpose
- evaluate their work by considering: What are the most effective resources, and how will I access them? Do I have enough information? Have I used a variety of sources? What more do I need? Does it make sense? Have I told enough? Is it interesting and original thinking? Does my writing have voice?

Drawing Inferences

at a text level, readers . . .

- draw conclusions about their reading by connecting the text with their schema
- make, confirm, and/or revise reasonable predictions
- know when and how to infer answers to unanswered questions
- form unique interpretations to deepen and personalize reading experiences
- extend their comprehension beyond literal understandings of the printed page
- make judgments and create generalizations about what they read
- create a sense of expectation as they read

at the word level, readers . . .

- use context clues and their knowledge of language to predict the pronunciation and meaning of unknown/unfamiliar words

at a text level, writers . . .

- compose text that allows, even encourages readers to make thoughtful inferences and draw meaningful conclusions
- consider their audience when making decisions about what to describe explicitly and what to leave to their readers' interpretation
- *show* what they mean in their writing instead of simply *telling* what they mean
- consider far more detail than they actually put in their writing so their readers can draw conclusions, make predictions and make connections of their own

at the word level, writers . . .

- provide enough print support and contextual structure so their readers can infer the meaning and importance of the words in their text

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- predict, generalize and estimate
- make problem-solving decisions based on their conceptual understanding of math concepts
- compose (like writers) by drawing pictures, using charts, and creating equations
- solve problems in different ways and support their methods through proof, number sentences, pictures, charts and graphs
- use reasoning and make connections throughout the problem solving process
- conjecture (i.e., infer based on evidence)
- use patterns (i.e., consistencies) and relationships to generalize and infer what comes next in the problem solving process

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- think about the value and reliability of their sources
- consider what is important to a reader or audience

Determining Importance

at a text level, readers . . .

- identify key ideas, themes and elements as they read
- distinguish between important and unimportant information using their own purpose(s) as well as the text structures and word cues the author provides
- use text structures and text features to help decide what is essential and what is extraneous
- use their knowledge of important and relevant parts of text to prioritize what they commit to long-term memory and what they retell and/or summarize for others
- consider the author's bias/point of view
- use the filter of essential/other to clarify usefulness when applying other cognitive strategies to their reading

at a word level, readers . . .

- determine which words are essential to the meaning of the text
- know when choosing to skip words/phrases of text will or will not impact their overall understanding
- make decisions about when unknown/unclear words need clarification immediately and accurately, and when substitutions can be used to maintain meaning and fluency

at a text level, writers . . .

- pay attention to the world around them and record what they believe is significant
- decide what ideas and/or information to include in their writing based on their own purposes and the needs of their intended audience

- select the genre and text structure that best communicates their ideas and/or information
- provide only essential details necessary to reveal their intended meaning or to produce their desired effect
- study other authors' techniques for highlighting important points in their texts

at a word level, writers . . .

- select the specific words that most accurately convey their intended meaning given their purpose and audience
- understand the importance of surface-level conventions when communicating in writing

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- look for patterns and relationships
- identify and use key words to build an understanding of the problem
- gather text information from graphs, charts, and tables
- decide what information is relevant to a problem and what information is irrelevant

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- evaluate and think critically about information
- sort and analyze information to understand it better
- make decisions about the quality and usefulness of information
- decide what is important to remember and what is not
- choose the most effective reporting format

Creating Sensory Images

at a text level, readers . . .

- immerse themselves in rich detail as they read
- create images connected to the senses of sight, hearing, taste, touch and smell to enhance and personalize understandings
- attend to 'heart' images – feelings evoked while reading
- revise their images to incorporate new information and new ideas revealed in the text
- adapt their images in response to the images shared by other readers

at a word level, readers . . .

- use visual, auditory and kinesthetic modes when learning how words work
- use what they know about a word's appearance (e.g., length, spacing above and below the line) to understand unknown words
- ask themselves 'Does that look right?' and 'Does that sound right?' when cross-checking unknown words

at a text level, writers . . .

- consciously create strong images in their writing using strategically placed detail
- attend to their own images while drafting text
- select words that create strong images for their readers
- create impact through their use of strong nouns and verbs
- match their illustrations and text format (e.g., spacing, font, paragraphing) with the 'visual impression' they have in mind for their writing
- study the ways other authors use 'image-evoking' language

at a word level, writers . . .

- use what they know about letter/sound relationships and spelling patterns to compose words that look and sound 'right'

mathematicians . . .

- use mental pictures/models of shapes, numbers, and processes to build understanding of concepts and problems and to experiment with ideas
- use concrete models/manipulatives to build understanding and visualize problems
- visually represent thinking through drawings, pictures, graphs, and charts
- picture story problems like a movie in the mind to help understand the problem
- visualize concepts in their head (e.g., parallel lines, fractions)

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- create rich mental pictures to understand text better
- interweave written images with multisensory (auditory, visual, kinesthetic) components to enhance comprehension.
- use words, visual images, sounds and other sensory experiences to communicate understanding of a topic

Synthesizing Information

at a text level, readers . . .

- continually monitor overall meaning, important concepts and themes while reading
- recognize ways in which text elements fit together to create larger meaning
- create new and personal meaning
- develop holistic and/or thematic statements which encapsulate the overall meaning of the text
- capitalize on opportunities to share, recommend and criticize books
- attend to the evolution of their thoughts across time while reading a text, and while reading many texts

at a word level, readers . . .

- select specific vocabulary from the text(s) to include in their synthesis because they know that specific language is highly meaning-laden
- know when certain vocabulary is critical to the text's overall meaning, and therefore, must be understood if comprehension is to be achieved

at a text level, writers . . .

- compose in such a way that their readers can create new meaning from their writing
- use what they know about the authoring process, genre and text structures to compose meaningful, engaging texts
- include cues in their text to help readers determine essential themes and ideas that would need to be included in any synthesis statement
- study the work of other writers they find compelling in order to create vision for their own writing

at a word level, writers . . .

- combine what they know about surface conventions when composing to create meaningful, easy to read text

mathematicians . . .

- generalize from patterns they observe
- generalize in words, equations, charts, and graphs to retell or synthesize
- synthesize math concepts when they use them in real life applications
- use deductive reasoning (e.g., reach conclusions based on known information)

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- utilize information from a variety of resources
- construct meaning about a topic
- enhance their understanding of a topic by considering different perspectives, opinions and sources

Problem Solving

at a text level, readers . . .

- know that once meaning has broken down, that any of the other cognitive behaviors can be employed to repair understanding
- use information from the three deep surface structure systems to repair text meaning

at a word level, readers . . .

- use information from the three surface structure systems to solve word issues
- select from a wide range of word strategies (e.g., skip and read on, reread, use context clues, use the letters and sounds, speak to a peer reader) to help make sense of unknown words
- develop reading fluency

at a text level, writers . . .

- revise their writing to make it clearer and more meaningful by adding details, eliminating unnecessary/unclear ideas or information, or rearranging text
- use what they know about writer's craft to enhance the meaning of their writing

at a word level, writers . . .

- edit the surface-level conventions of their writing to make it easier to read, easier to understand
- develop writing fluency

mathematicians . . .

- listen to others' strategies and adjust their own
- use estimation to determine if their answer is reasonable
- use trial and error to build thinking
- cross check by using more than one way to do a problem (e.g., check subtraction by adding)
- use tools (e.g., manipulatives, graphs, calculators) to enhance meaning

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- revise and edit for clarity and accuracy
- check sources for updated copyrights and reliability